

AS

Notice of Allowability	Application No.	Applicant(s)	
	09/015,287	NOZAKI ET AL.	
	Examiner	Art Unit	
	John S. Chu	1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2/10/04.
 2. ☒ The allowed claim(s) is/are 1-23.
 3. ☐ The drawings filed on _____ are accepted by the Examiner.
 4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

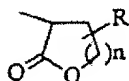
- | | |
|--|--|
| <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. <input type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
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John S. Chu
 Primary Examiner
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REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance: The claimed invention is drawn to the following:

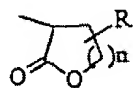
1. An acid-sensitive polymer compound, comprising:
 - a film-forming polymer;
 - a carboxyl group bonding to a side chain of said polymer main chain, said carboxyl group having a protective group; and
 - an additional acidic functional group bonding to a side chain of said polymer main chain, said acidic functional group having an acid-cleavable protective group;said carboxyl group having, as said protective group, a lactone structure represented by a formula



wherein n is an integer of 1 - 4, and R represents any of a hydrogen atom, an alkyl group, an alkoxy group or an alkoxy carbonyl group and bonding to an arbitrary position of said lactone structure excluding a second position forming an ester bonding.

8. A resist composition, comprising:
 - an acid-sensitive film-forming polymer insoluble to an alkaline solution; a carboxyl group bonding to a side chain of said polymer's main chain, said carboxyl group having a protective group; and an additional acidic functional group bonding to a side chain of said polymer main chain, said acidic functional group having an acid-cleavable protective group; said carboxyl group having, as said protective group, a lactone structure represented by a formula

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wherein n is an integer of 1 - 4, and R represents any of a hydrogen atom, an alkyl group, an alkoxy group or an alkoxycarbonyl group and bonding to an arbitrary position of said lactone structure excluding a second position forming an ester bonding; and

a photoacid generator causing a decomposition in response to an absorption of a radiation, said photoacid generator releasing an acid that causes a deprotection of said acid-cleavable protective group in response to said decomposition;

said resist composition becoming soluble to said alkaline solution after said acid-cleavable protective group has caused said deprotection.

Applicants have argued that the claims are not anticipated by the prior art of NOZAKI et al '416 as explained in the response received February 10, 2004, wherein the prior art mevalonic lactone group is different from the claimed 2-hydroxy-alkylolactone group used to make the copolymer having the formula in claim 1. The examiner concurs with the applicant and withdraws the rejection over NOZAKI et al '416.

Newly cited reference to TAKECHI et al is to the same assignee of *Fujitsu Limited* having a filing date of April 24, 1998. This reference is not available as prior art under 102 or 103 due to a later filing date. However, the reference was considered for an obviousness-type double patenting rejection, however the claimed chemically amplified resist material to the polymer recited a terpolymer has three monomer groups, while the claims to the current application are to a copolymer and a resist material comprising a copolymer having two monomeric groups. There is no motivation present in the prior art to remove the first monomer claimed in TAKECHI et al, which is protected with an alicyclic hydrocarbon monomer to arrive

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at the claimed copolymer of the current application. Further there is no motivation in the prior art for one of ordinary skill to add a monomer having an alicyclic hydrocarbon to the copolymer of the current application to arrive at a terpolymer as claimed TAKECHI et al.

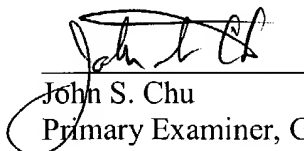
Because none of the prior art references of record disclose the claimed acid polymer, the resist composition or the method of forming a pattern, claims 1-23 are seen as allowable and passed to issue.

2. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Chu whose telephone number is (571) 272-1329. The examiner can normally be reached on Monday - Friday from 9:30 am to 6:00 pm.

The fax phone number for the USPTO is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1700.


John S. Chu
Primary Examiner, Group 1700

J.Chu
April 17, 2004